

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-37 (Cancelled).

38. (Currently Amended) A wireless mobile cellular phone having a plurality of antennas, comprising:

- a ~~QPSK~~ quadrature phase shift keying (QPSK) mapper configured to receive input data;
- a first ~~MTCM~~ multiple trellis coded modulation (MTCM) encoder and QPSK mapper unit operatively coupled to the QPSK mapper;

- a first symbol selector and puncturer operatively coupled to the first MTCM encoder and QPSK mapper unit, the first symbol selector and puncturer being configured to provide a first channel-coded symbol stream;

- a symbol interleaver operatively coupled to the QPSK mapper;

- a second MTCM encoder and QPSK mapper unit operatively coupled to the symbol interleaver;

- a symbol de-interleaver arrangement operatively coupled to the second MTCM encoder and QPSK mapper unit;

- a second symbol selector and puncturer operatively coupled to the symbol de-interleaver arrangement, the second symbol selector and puncturer being configured to provide a second channel-coded symbol stream; and

- ~~an a particular~~ encoder operatively coupled to the first symbol selector and puncturer and to the second symbol selector and puncturer, the particular encoder being configured to receive the first channel-coded symbol stream and the second channel-coded symbol stream, the particular encoder providing space-time coding to the first channel-coded symbol stream and to the second channel-coded symbol stream, the particular encoder generating a first space-time-channel-coded symbol stream and a second space-time-channel-coded symbol stream,

wherein the wireless mobile cellular phone supports orthogonal frequency division (OFDM) multiplexing.

wherein the wireless mobile cellular phone comprises a personal digital assistant (PDA) equipped with a wireless transceiver,

wherein the wireless mobile cellular phone supports wireless communications with a wireless local area network,

wherein at least the QPSK mapper, the first MTCM encoder and QPSK mapper unit, the second MTCM encoder and QPSK mapper unit and the particular encoder are part of an outer encoder and/or an inner encoder, and

wherein information transferred between the inner encoder and the outer encoder is evaluated to determine at least a number of turbo iterations, a stopping criteria, a symbol interleaver span and a symbol interleaver depth.

39. (Previously Presented) The wireless mobile cellular phone according to claim 38, wherein the wireless spread spectrum mobile cellular phone supports redundant non-binary modulation in combination with a finite-state encoder.

40. (Previously Presented) The wireless mobile cellular phone according to claim 38, wherein the wireless mobile cellular phone supports code division multiple access, voice communications, multimedia communications and navigational communications.

41. (Previously Presented) The wireless mobile cellular phone according to claim 38, wherein the wireless mobile cellular phone supports spread spectrum modulation.

42. (Previously Presented) The wireless mobile cellular phone according to claim 38, wherein the wireless mobile cellular phone supports voice communications and multimedia communications.

43. (Previously Presented) The wireless mobile cellular phone according to claim 38, wherein the wireless mobile cellular phone supports navigational communications.

44. (Previously Presented) The wireless mobile cellular phone according to claim 38, wherein the wireless mobile cellular phone supports a Universal Mobile Telecommunications System mobile communications device.

45. (Previously Presented) The wireless mobile cellular phone according to claim 38, wherein the symbol de-interleaver arrangement comprises a plurality of symbol de-interleavers.

46. (Currently Amended) A wireless spread spectrum mobile cellular phone having a plurality of antennas in which two of the plurality of antennas are each configured to transmit one of a first space-time-channel-coded symbol stream and a second space-time-channel-coded symbol stream, the wireless spread spectrum mobile cellular phone comprising:

- a QPSK quadrature phase shift keying (QPSK) mapper configured to receive input data;

- a first MTCM multiple trellis coded modulation (MTCM) encoder and QPSK mapper unit operatively coupled to the QPSK mapper;

- a first symbol selector and puncturer operatively coupled to the first MTCM encoder and QPSK mapper unit, the first symbol selector and puncturer being configured to provide a first channel-coded symbol stream;

- a symbol interleaver operatively coupled to the QPSK mapper;

- a second MTCM encoder and QPSK mapper unit operatively coupled to the symbol interleaver;

- a symbol de-interleaver arrangement operatively coupled to the second MTCM encoder and QPSK mapper unit;

- a second symbol selector and puncturer operatively coupled to the symbol de-interleaver arrangement, the second symbol selector and puncturer being configured to provide a second channel-coded symbol stream; and

- an a particular encoder operatively coupled to the first symbol selector and puncturer and to the second symbol selector and puncturer, the particular encoder being configured to receive the first channel-coded symbol stream and the second channel-coded symbol stream, the particular encoder providing space-time coding to the first channel-coded symbol stream and to the second

channel-coded symbol stream, the particular encoder generating the first space-time-channel-coded symbol stream and the second space-time-channel-coded symbol stream,

wherein the wireless spread spectrum mobile cellular phone supports voice communications, multimedia communications and navigational communications,

wherein the wireless spread spectrum mobile cellular phone supports wireless communications with a wireless local area network,

wherein the wireless spread spectrum mobile cellular phone supports e-mail communications, video conference communications and Internet communications,

wherein at least the QPSK mapper, the first MTCM encoder and QPSK mapper unit, the second MTCM encoder and QPSK mapper unit and the particular encoder are part of an outer encoder and/or an inner encoder,

wherein information transferred between the inner encoder and the outer encoder is evaluated to determine at least a number of turbo iterations, a stopping criteria, a symbol interleaver span and a symbol interleaver depth, and

wherein the information transferred between the inner encoder and the outer encoder is evaluated using extrinsic information transfer (EXIT) chart based analysis.

47. (Previously Presented) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports redundant non-binary modulation in combination with a finite-state encoder.

48. (Currently Amended) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the QPSK mapper, the first MTCM encoder and QPSK mapper unit, the first symbol selector and puncturer, the symbol interleaver, the second MTCM encoder and QPSK mapper unit, the symbol de-interleaver arrangement, the second symbol selector and puncturer and the particular encoder are part of one or more wireless transmitters.

49. (Previously Presented) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports code division multiple access.

50. (Previously Presented) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports orthogonal frequency division multiplexing.

51. (Previously Presented) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone comprises a Universal Mobile Telecommunications System phone system.

52. (Previously Presented) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports redundant non-binary modulation in combination with a finite-state encoder.

53. (Previously Presented) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports telemetry communication systems.

54. (Previously Presented) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports space-time turbo-coded modulation.

55. (Previously Presented) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports block space-time coding.

56. (Previously Presented) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports convolutional space-time coding.

57. (Previously Presented) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the plurality of antennas are arranged so that a fading correlation between the antennas is below 0.5.

58. (New) The wireless mobile cellular phone according to claim 38, wherein the wireless mobile cellular phone supports facsimile communications.

59. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports facsimile communications.